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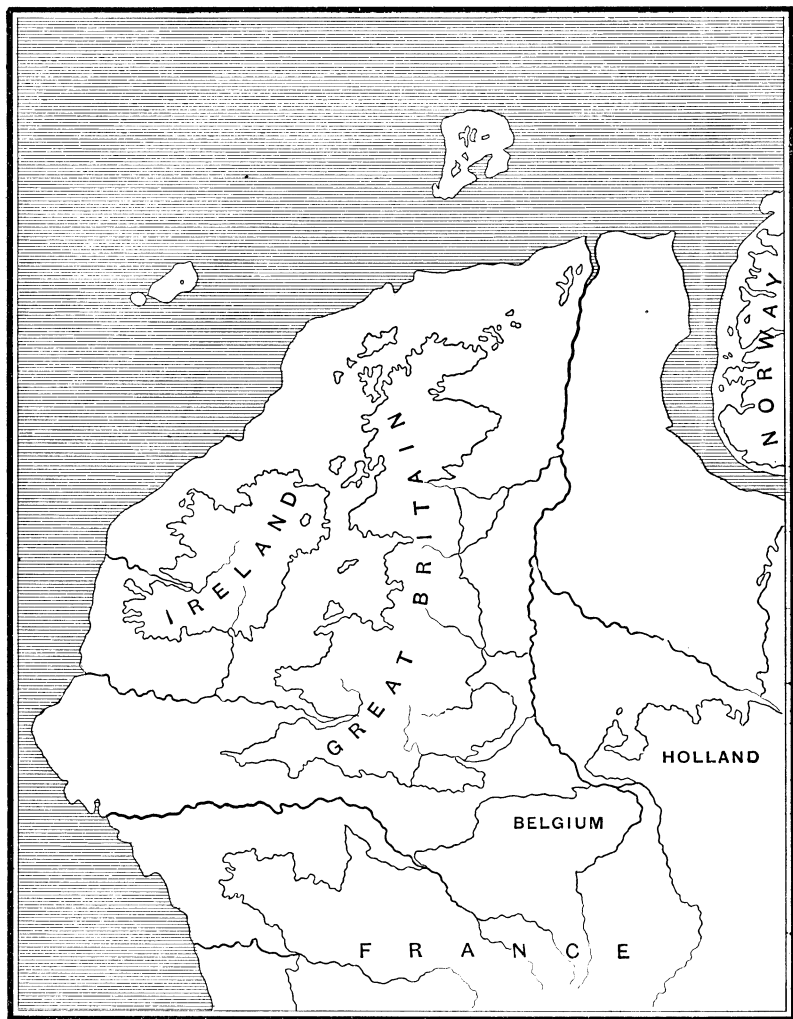
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ENGLAND'S DOMINANT INDUSTRIAL POSITION.

FROM the dawn of history England has been destined to play the leading part in industrial development, so soon as the world-market embraced the entire globe. Her pre-eminence in industrial and social evolution is due primarily to her position of natural advantage among modern commercial nations.

The expression, "from the dawn of history," has been used with intent. Primeval Britain was part of a great continent extending to Iceland and Greenland. Even in the (geologically speaking) comparatively recent Pleistocene age the British Isles were a part of the continent of Europe, the English rivers joined the Rhine, the Elbe and others to make a mighty stream flowing into the North Atlantic Ocean¹ (see Map I). The separation of the British Isles from the mainland by "the narrow streak of silver" known as the Straits of Dover, has altered the history of the world and the destiny of nations. When the elements declared peace at the close of the Pleistocene age England came into the heritage of the "favored nation clause," but the claim could not be made good until the expansion of the world in the fifteenth century. To realize the altered relations of England to civilization we must project ourselves into the Mediterranean world of the Ptolemaic geography, which represented the known world down to the close of the fifteenth century. Mediæval civilization was almost wholly confined to the European area accessible to the Mediterranean Sea. The world powers were all located there. Scandinavia was unknown. Germany, the Netherlands, and Britain were not to be compared with Italy, France, and the Iberian peninsula. The expropriation of Europe having reached its limit under the known industrial methods the far East was the goal of wealth seekers. The Mediterranean nations possessed the advantage of location and profited by it. The isolated position of the British Isles, actually at the end of the world, is admirably shown in Ptolemy's map of the world. Even the Indian Ocean is of vastly greater importance than the Atlantic. Bearing in mind the ignorance of the virtues of the magnetic needle and

¹ DAWKINS, *Early Man in Britain*, p. 151.



PLEISTOCENE BRITAIN

(From Dawkins's *Early Man in Britain*)

the difficulties attendant on venturing into the open and unknown sea, we are not surprised that the contour of the British Isles was not better known. It is but another evidence of their insignificance.

The Mediterranean nations were destined, however, to forfeit their natural advantages. In 1498 the Cape of Good Hope route to India was discovered. In 1515 the Turks fell on Egypt and blocked the only remaining land route to the East. The latter event was almost as important as the former, since it stimulated the development of the sea route to India. The position of natural advantage in relation to the new route was enjoyed by Spain and Portugal. The energies of the former were, however, being directed elsewhere. For a long time the Portuguese, under the benediction of the pope, monopolized the trade with India. There was a force at work, however, more powerful than the benediction of a pope. The plucky Hollanders, progressive, independent, liberal, improved the art of navigation, traded freely with all nations, and finally supplanted the Portuguese in the East. This is an interesting illustration of the play of forces at this time. The slight advantages of position and possession enjoyed by Portugal are overcome by the Netherlands through the superiority of the latter nation. Supremacy, as we shall see in a more important case, inevitably passes into the hands of the northern nations, but character is not always to triumph over geography.

Meanwhile the destiny of nations was not being settled in the far East but in the unknown West. The early precedence of Spain in the discovery and settlement of the New World was not due merely to her advantage of position between the Mediterranean and the Atlantic, nor to the accident of Columbus' subsidy, but to the favoring ocean currents and prevailing winds. The prevailing winds are from the northeast, and the ocean currents sweep away from the Eastern Hemisphere, off the Iberian peninsula toward the Gulf of Mexico and South America. Once having reached the West Indies, Florida, Mexico, South America, colonists were favored by a mild climate, which enabled them to sustain life easily, and to furnish temporarily an enormous advantage to the mother country. It was not possible, however, for this advantage to endure, for these colonists, enervated by a too favorable climate, succumbed to the more vigorous immigrants peopling the less hospitable shores, after the analogy of the victorious northern nations of the old country.

France, Holland and England, ignoring currents and winds, took

advantage of the shortness of the modern route, and settled largely in accordance with isothermal lines. The immediate disadvantage but ultimate benefit to the latter nations lay in establishing colonies where effort was needed to maintain an existence, but at the same time where effort was rewarded by more than an existence, a comfortable livelihood in an invigorating climate. In general contour and coast line North America resembles Europe. Great navigable rivers flow to the sea, giving today ports of entry a thousand miles from the ocean. The land which England was to colonize was as much superior to the lands selected (involuntarily) by the Spanish as England is to Spain.¹ The climatic conditions of North America resembled those of these colonizing nations. The same plants and cereals grew there. The grains which had made energetic aborigines were supplemented by domestic animals, whose absence had kept the natives in the nomad state. With these advantages the cultivation of the relatively barren soil along the North Atlantic coast was not impossible, though sufficiently difficult to prove a selective agency in determining the character of the colonists.² Their power to labor was their chief source of strength. The climatic conditions produced only such diseases of men and cattle as were already known to the settlers, so that remedies were at hand, which was not true in the case of the Spanish settlers. These were, however, all deferred advantages. The palm at first seemed to belong to Spain, as is well shown by maps of the period. A map drawn by Johannes Schoener in 1520 locates America all below the equator, except the islands, Cuba, the Antilles and others, opposite Spain, and an island under the Arctic circle on a parallel with Iceland. A map of the year 1540 represents South America in much its present known form, but North America is a long peninsula, of which Yucatan and Mexico, Cuba and Florida are substantially correct, but the northern part tapers off northeasterly (having a width from east to west for the most part of only a few hundred miles) not far from Iceland.³

While these advantages of precedence were being overcome by natural causes in the New World similar forces were at work in the Old. The only nations to whom the conquest of the New World was possible were gradually eliminated by the character of the people or the location of the land until the contest was narrowed to two. Loca-

¹ LEROY-BEAULIEU, *De la colonisation chez les peuples modernes* (Paris, 1891).

² SHALER, *History of the United States*, vol. i. chaps. i, ii.

³ LELEWEL, *Geographie du moyen age* (Brussels, 1850), plate xlv.

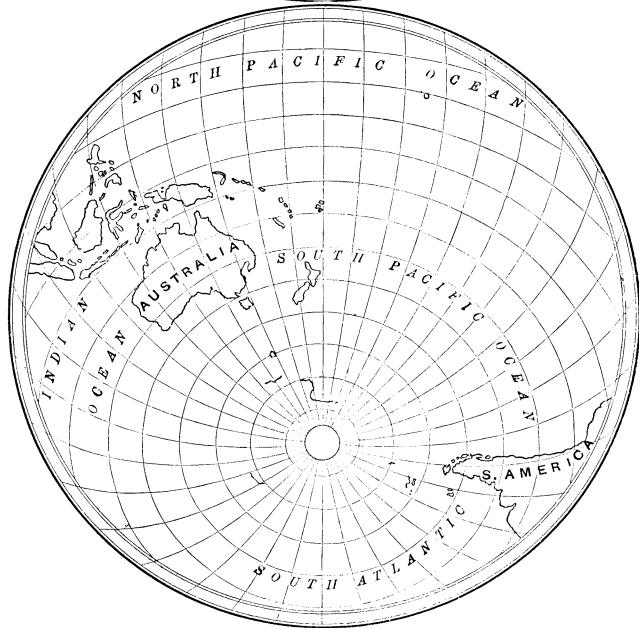
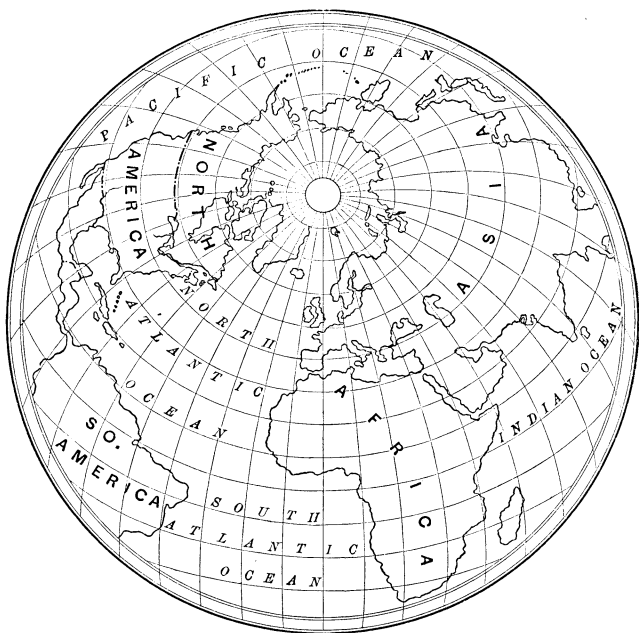
tion was favorable to Spain and Portugal as well as to Holland and England. The two former were handicapped by the character of their colonies and their peoples. The superstitious, ill-governed Spanish and Portuguese were no worthy rivals for the individualistic, enterprising, protestant communities of the Netherlands and England, who were in some measure capable of self-government and who had been subjected to the clarifying influence of the Renaissance. The conflict is reduced to the Netherlands and England. It is unnecessary to go into the details of history any more here than in the former cases. England won by her geographical advantages. Freedom from war, guaranteed by the Channel, and easy access to the globe discounted the superiority of the Dutch in government and personal character.¹ These latter qualities were proof against Holland's militant conqueror, Spain, but had to yield the supremacy to commercially favored Britain.

England's natural advantages were two: geographic and geological. As was first pointed out by Sir John Herschel, "If we describe a great circle round London, which at the present time is, in fact, the great focus of attraction for the commerce of the whole world, almost all the continental surface² surrounding the basin of the Atlantic, rendering it almost an inland sea, will fall within this hemisphere."³ Within this great inland sea, London enjoys a position more favorable than that occupied by Venice when she commanded the commerce of the Mediterranean. Not only does the bulk of the land of the world surround the Atlantic Ocean with the British Isles in the center, but the greatest mountain ranges of the world in Asia, Africa, North and South America shut these continents off to some extent from the Pacific Ocean and help to complete the confined nature of the Atlantic hemisphere. As a result of these mountainous barriers, most of the great navigable rivers of the two hemispheres flow directly or indirectly into the Atlantic, bringing London and the British Isles not merely into contact with the seaports of the various countries, but also with the inland towns in the regions drained by these rivers. The Atlantic Ocean became the great highway of the world and all routes led to London (see Map II).

¹ D. CAMPBELL, *The Puritan in Holland, England, and America*, vol. i.

² Sixteen-seventeenths of the land surface of the globe, the land in this hemisphere being 47 million square miles as against five million in the other, one-half the entire hemisphere in the one case, one-twentieth in the other.

³ RECLUS, *The Earth* (London, 1886), p. 36.



THE WORLD

Perspective projection on the horizon of London

This supreme advantage might, however, have been overbalanced by numerous minor advantages possessed by other lands. We have seen, though, that the Netherlands formed England's only serious rival. Another could, by virtue of location, have been found in Ireland, but, in addition to the racial superiority of the inhabitants, England's mountains enable her land to be drained toward Europe, whereas Ireland's highlands are rather hindrances than aids to commerce, so that, as one consequence, none of her five chief ports can claim superiority. The protecting channel was a further advantage of England over the Netherlands. The channel furnished a better means of commercial communication than Holland's frontier, while proving an effectual defense against invasion, which latter factor, it will be remembered, played a large part in subordinating the Netherlands.

The value of a bounteous but reticent nature has been alluded to as important in national development. The two rival countries were each favored by an inevitable struggle with natural forces, Holland contending with the sea, and England with a variety of elements.

Hardly less important than geographical location in the commercial development of Britain is geological formation. The configuration of the English coast line is one of the important factors in her commercial ascendancy. A straight line drawn along the east coast measures about 350 miles, along the west coast about the same, along the south 320, making a total of 1000 miles; "but so deeply is the coast indented that the total length of coast line is about 2400 miles—that is, one mile of coast to twenty-two square miles of surface. This great proportion of coast line is still more apparent when we compare England with the two great commercial nations of the continent—France, which has one mile of coast to seventy-nine square miles of surface, and Germany, which has a very much smaller proportion."¹ The number of excellent harbors is scarcely less remarkable than the indentations in the coast. Allusion has already been made to the relief of the land. It slopes gently toward the southeast, making many of the rivers navigable for a relatively great distance. At the same time the location of the mountains has an important effect in making the climate equable by controlling the moisture and winds. England, of course, shares with western Europe the advantage of the influence of the Gulf Stream, the contrast with countries in the same

¹ *The World* (Longmans), p. 100.

latitude, *e. g.*, Labrador, on the west shore of the Atlantic, being most marked. Nature has again been very generous in shaping the surface of the land. "England is distinguished among all the countries of Europe for the great variety of geological formations. It is the very paradise of the geologists, for it may be said to be in itself an epitome of the geology of almost the whole of Europe, and of much of Asia and America. . . . Whatever may be the mineral riches of America or Australia, the British Isles remain the most productive mining country in the world."¹ The mineral wealth is not only great, but a large variety of rocks lie quite near the surface, so that it was literally necessary only to scratch the ground to produce wealth.

This England, blest above all her sisters, slowly and painfully subdued Nature, who was destined to be her slave. "It remained even at the close of Roman rule an 'isle of blowing woodland,' a wild and half reclaimed country, the bulk of whose surface was occupied by forest and waste. The rich and lower soil of the river valleys, indeed, which is now the favorite home of agriculture, had in the earliest times been densely covered with primeval scrub."² The climate was much more disagreeable than now.³ The impassable forests of Surrey, Kent, and Sussex, the marshes of Lincoln, Cambridge, and Norfolk have become gardens. The unseen veins of coal in Lancashire, Durham, and South Wales have made possible the British Empire. But until the expansion of the world these treasures were unappreciated. England was pre-eminently insular. The first effort of the Englishman was naturally directed to the development of the superficial advantages of his country, with such happy results that until the middle of the eighteenth century England was dominantly pastoral and agricultural. The exports of minerals and manufactures previous to the modern commercial era, while not to be ignored, were distinctly insignificant as compared with the importance of agriculture, and another enterprise intimately connected with the soil, wool raising. "To the Ghent and Bruges of the Middle Ages, England stood in the same relation as the Australian colonies hold to the Leeds and Bradford of our own day. The sheep which grazed over the wide, uninclosed pasture lands of the island formed a great part of the wealth of England, and that wealth depended entirely on the flourishing trade with the Flemish towns in

¹ RECLUS, *The British Isles* (ed. by RAVENSTEIN), pp. 7, 8.

² GREEN, *The Making of England*, § 8. See, also, map.

³ GIBBINS, *Industry in England* (London, 1896), p. 18, and map, p. 65.

which English wool was converted into cloth.”¹ From prehistoric times England had been in communication with continental peoples, but her position was always one of passivity. Commerce was in the hands of Venetians or the Hansa towns, or the Spanish or Portuguese or the Dutch. The development even of domestic manufactures was due to the immigration of skilled artisans into England, as a result of religious persecutions. The “nation of tradesmen” was innocent of the very elements of trading. Under Edward VI, in the middle of the sixteenth century, “it was enacted that whoever should buy any corn or grain with intent to sell it again should for the first fault suffer two months’ imprisonment and forfeit the value of the corn; for the second, six months’ imprisonment and forfeit double the value of the corn; for the third, be set in the pillory, suffer imprisonment during the king’s pleasure, and forfeit all his goods and chattels.”² Insular in commerce the people were also insular in mind and manners. “She had originated nothing of her own. Satirists held that Englishmen fetched their dress and external accomplishments from foreign nations. ‘I think,’ says Portia in the *Merchant of Venice* of her English lover, ‘he bought his doublet in Italy, his round hose in France, his bonnet in Germany, and his behavior everywhere.’”³

Observe the transformation wrought by Columbus and his fellow adventurers. The immediate, tangible result of the era of discoveries was the creation of a world-market. The control of this market, as we have seen, finally rested in the hands of the English. Spanish armadas, navigation acts, piratical expeditions are mere incidents; often, it is true, very discreditable incidents, but still subordinate to the great dominant feature of natural advantage. The first great benefit to England of this position of advantage was that she gained command of the carrying trade of the world’s commerce. It was a great achievement of a hitherto uncommercial nation to become “mistress of the seas,” but she was to enjoy an even higher position and to give a greater interpretation to her maritime dominance. Added to her favored position she had the internal, but undeveloped, advantages already mentioned. These enabled her to supplant not merely the ships of other nations, but their cargoes.

¹ GARDINER and MULLINGER, *Introduction to the Study of English History* (London, 1894), p. 86.

² ADAM SMITH, *Wealth of Nations* (Globe ed.), p. 412.

³ GARDINER and MULLINGER, p. 124.

England has developed this world-market, often at the expense of primitive nations, but on the whole to the advantage of her present rivals. The methods which she adopted in the eighteenth century to supply this market were those used since then by all industrial nations — cheapened production and distribution. The new continents were an outlet for the population of the European states. The New World furnished food in superabundance for a growing population, but they had to look to the Old World for clothes and many other simple necessities. To clothe these colonists Englishmen wore rags. "Cheap and expeditious" were the methods adopted. The demand of the world was pressing. England occupied the favored position. For half a century she gave herself to the task of clothing the New World. What wonder, then, that multitudes in England were forgotten and went unclothed. The rapidity with which mechanical improvements were introduced, the transformation effected in methods of production by the introduction of steam, the development of a magnificent system of roads, the building of canals, and finally the construction of railways, altered the face of England. In 1688 the agriculturists probably outnumbered those engaged in trade and commerce four to one. Between 1811 and 1831 the increase in agricultural families was $2\frac{1}{2}$ per cent., in manufacturing and trading families $31\frac{1}{2}$ per cent. The independent yeomanry, who were supposed to have numbered 180,000 at the beginning of the eighteenth century, had all but disappeared at its close.

The beginning of the marvelous series of mechanical inventions seems to have been with Kay's fly shuttle, which doubled the rapidity of the process of weaving, aggravating an already present difficulty, the insufficiency of the supply of cotton yarn to meet the demand. Hargreaves relieved this by inventing in 1764 the spinning jenny. A single spinner could soon spin at once more than a hundred threads. Arkwright and his assistants introduced and improved roller spinning in 1769. Cartwright's power loom, introduced in 1785, and the application of steam made in 1790, enabled a man and five children to do as much as thirty men in the old way. It is to be observed that the first industrial expansion took place in an entirely new industry, the cotton manufacture, which was exempt from the restrictive legislation and hampering traditions which applied to the existing industries. Once more geography and geology play their parts; the fine port of Liverpool gave access to the coal region of Lancashire, so that American

cotton could readily reach the first great modern industrial center. In 1766 the process of converting pig iron into malleable iron was first accomplished by means of coal in a reverberatory furnace, thus relieving the nearly exhausted English forests and providing the machinery for the new industries. A puddling furnace was patterned in 1783. Under George III, 452 acts were passed for repairing the highways. Between 1818 and 1829, 1000 miles of turnpike were constructed. In 1761 the first canal was built. By 1792 London was connected with all the midland towns by excellent roads and canals.¹

The results of these revolutionary changes were a shifting of the population from the south to the north of England and from the country to the rapidly growing cities ; and the introduction of highly specialized division of labor with its consequences of great factories, employment of women and children, long hours, low wages, ignorant foremen, careless and conscienceless proprietors. Great and pressing problems began to accumulate ; overcrowding in cities, unemployment, pauperism, unsanitary conditions, illiteracy, intemperance and a host of others. These too were the legacy of nature. No man was responsible for their creation, whoever might have been charged with their continuance. The industrial revolution had come upon a nation unprepared for its consequences, because the accident of position thrust a relatively insignificant people into the leadership of a world-wide commerce and the government of the world's largest and greatest empire. How the nation has grappled with these problems is beginning to be appreciated. Their successful and unsuccessful solutions will prove invaluable to us and other nations where the same problems are developing, if we frankly recognize that England was inevitably the forerunner in these industrial and social changes and consequently must be possessed of the valuable knowledge which comes only from experience.

The one power which can take away from England her precedence is the annihilation of distance. The encroachments of the less favored nations may be explained by the fact that location has ceased to have

¹For accounts of the industrial revolution, see TOYNBEE, *Industrial Revolution*; LECKY, *England in the Eighteenth Century*; GIBBINS, *Industry in England*; HOBSON, *The Evolution of Modern Capitalism*; CUNNINGHAM, *Growth of English Industry and Commerce*, vol. ii; SCHULZE-GAEVERNITZ, *Social Peace and The Cotton Industry*. Good brief sketches are TOYNBEE's address on "Industry and Democracy" (in *Industrial Revolution*), and H. C. ADAMS' *An Interpretation of the Social Movements of Our Time* (Church Social Union, Boston). The literature is so extensive that it seems unnecessary to enter into further detail here.

the prime significance which it possessed in previous centuries. The three great inventions whereby the genius of man has been able to bring the extremes of this globe nearer together than were the distant parts of mediæval civilization were successively appropriated by England to strengthen her position of natural advantage. The magnetic needle in the fifteenth century gave her ships command of the world's commerce. Steam in the eighteenth century, coupled with her geological and geographical superiority, gave her the first position in industry. Electricity in this century has for a time enabled her to maintain the solidarity of the British Empire, the evidences of which cause every foreign visitor to the city of London to marvel. But electricity, by its annihilation of distance, has been friendly to England's competitors, and even the New World advances by this latest invention into the field of rivalry. The chief contemporary evidence of Britain's having made the best use of all the auxiliaries of commerce lies in the fact that she alone has been able to maintain a system of free trade. The growing protectionist sentiment is a testimony to the loss of some of the advantages of her position.

The bands of which electricity is one of the chief, which knit the great world powers closer together, may ultimately eliminate the Chauvinism which fears to learn from one's elders and natural superiors. In the meanwhile a just appreciation of some of the irresistible forces of nature may help our frail human judgments. England is the mother of modern social reforms as of the industrial revolution. We fly in the face of nature when we refuse to learn of her.

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